



SPIRE-05-2015

## ROMEIO

**Full Title:** Reactor Optimisation by Membrane enhanced Operation

**Aim:**

Industry and academia have teamed up around a new reactor concept using membranes to carry out chemical synthesis and downstream processing in a single step. A new level of process intensification for catalytic driven and eco-friendly reaction systems is at hand: ROMEIO's aim is to reduce energy consumption by up to 80% and emissions by up to 90% in industrial catalytic gas-phase reactions.

**Concept:** The new technology concept will be proven by two prominent large volume reactions: a demo plant for hydroformylation will be built while another demo will show the feasibility of the concept for the water-gas shift reaction, in which carbon monoxide and water react to form hydrogen. These processes for bulk chemicals and bio-energy applications have been chosen to demonstrate the high impact of the ROMEIO technology in a near industrial environment.

**Start date:** 14/09/2015

**End date:** 13/09/2019